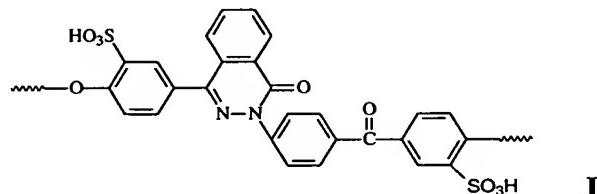
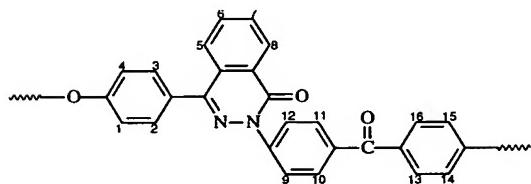


1. Sulfonated poly(phthalazinones) of structural formula I



2. Sulfonated poly(phthalazinones) of structural formula I as defined in Claim 1, in the form of a membrane.
3. Sulfonated poly(phthalazinones) of structural formula I as defined in Claim 1, wherein the degree of sulfonation (Ds) is in the range of 0.6 to 1.0.
4. A process for the preparation of sulfonated poly(phthalazinones) of structural formula I as defined in claim 1, comprising reacting poly(phthalazinones) of formula II



II

with a sulfonating agent

5. A process according to claim 4, wherein the sulfonating agent is a mixture of concentrated sulfuric acid and fuming sulfuric acid.
6. A process according to claim 4 or 5, wherein the sulfonating agent is a mixture of 95-98% concentrated sulfuric acid and 27-33% fuming sulfuric acid with different acid ratios.
7. A process according to claim 5 or 6, wherein the degree of sulfonation (DS) is controlled by varying the ratio of concentrated sulfuric acid to fuming sulfuric acid and the reaction time.

8. A process according to claim 7, wherein the degree of sulfonation (DS) is in the range of 0.6 to 1.23.
9. A process according to claim 4, 5, 6, 7 or 8 including the additional step of casting the sulfonated poly(phthalazinones) to form a membrane.
10. A process for preparing sulfonated poly(phthalazinone) ether sulfone ketones, comprising reacting a poly(phthalazinone) ether sulfone, with a sulfonating agent.
11. A process for preparing sulfonated poly(phthalazinone) ether sulfones, comprising reacting a poly(phthalazinone) ether sulfone with a sulfonating agent.
12. A process according to claim 11 or 12, wherein the sulfonating agent is a mixture of concentrated sulfuric acid and fuming sulfuric acid.
13. The use of sulfonated poly(phthalazinones) of structured formula I as defined in claim 1, as a solid polymer electrolyte membrane in a fuel cell.
14. A membrane electrode assembly for use in a fuel cell comprising : (a) an anode, (b) a cathode; and (c) a solid polymer electrolyte membrane between said anode and said cathode, said solid polymer electrolyte membrane comprising a sulfonated poly(phthalazinone) of structured formula I as defined in claim 1.